REMARKS

In the subject Office Action the Examiner finally rejected Claims 1, 11, 39, 59, 72, 102, 105, 126, 128, 138, 145 and 164 under 35 U.S.C. § 103(a) as obvious over Wade in view of Cook. He further rejected Claims 65, 97 and 151 under 35 U.S.C. § 103(a) as obvious over Wade in view of Cook further in view of Pink et al. These are both new rejections, with the finality justified by the Examiner on the ground of Applicants' prior amendments. Applicants respectfully submit that the rejections are without merit.

Prior Art Processes:

The prior art cited by the Examiner involves two fundamental differences between other transport processes and Applicants' claimed process: positive pressure vs. negative pressure motivation and movement of large objects vs. movement of loose granular materials. In order to make clear the unique and nonobvious nature of Applicants' invention, several physical principles (well known to those skilled in the art) about these differences must be recognized.

1. Positive pressure and negative pressure (vacuum) pneumatic motivation are significantly different. Positive pressure causes the blown air to disperse in all directions (think of air blown outward by a fan). The moving object(s), although propelled by the air, must be guided by diverters, deflection panels, etc. In contrast vacuum motivation causes the air to converge in a concentrated stream and it flows naturally without dispersion through the conduits toward the vacuum source. The moving object(s) are entrained in the air stream and move toward the vacuum source with the stream, flowing with it around bends, through wyes, etc. Thus positive pressure operates on the object(s) and requires external guidance, while vacuum operates on the air stream and the object(s) flow with the air.

2. Positive pressure requires "batch" motivation while vacuum permits continuous motivation. If a first object (such as a carrier) pushed by positive pressure is followed too closely by a second object also being pushed, the presence of the second object in the conduit cuts off much of the air pressure to the first object, causing the first object to slow down in its passage through the conduit. The second object catches up to the first object and "rear ends" it. This either causes the two objects to jam within the conduit or makes a "double weight" combined object for the positive pressure to push, which can overtax the system. Sending a third, fourth, etc. object into the conduit

only compounds the problem. Thus objects must be widely spaced, with normally only one object at a time being in the conduit.

With negative pressure, however, since all the air is flowing at all times toward the vacuum source, multiple carriers can be in the conduit, since all are traveling at the same speed with the air flow and the presence of one does not block the motivating air from the others, thus providing for continuous object travel. Indeed, a conduit can be substantially filled with moving materials in a vacuum system without clogging, which is impossible in a positive pressure system.

3. These two principles lead to a third, that motivation of large objects (such as carriers) is fundamentally different from conveyance of particulated materials such as ice cubes. Large single objects are easily pushed or pulled, and since they are unitary bodies, do not disperse or agglomerate during travel and do not jam up as long as they are widely separated. Granular or particulated materials, however, travel in loose agglomerations, interact with each other as they travel, and cannot realistically be individually "spaced apart" as they travel. Since in a vacuum system they are all moving with the air stream flow toward the vacuum source, their interactions are minimal and rarely affect their travel. In a positive pressure system, however, the particles (such as ice cubes) are pushed from behind, and thus the rearmost ones move faster and overrun the leading ones, causing the entire body to jam together and clog up the conduit. The result is that particulated materials cannot be effectively transported by pressure systems, since the frequent and repeated jams and clogs in the systems result in excessive down time while the systems are disassembled and the clogs and jams cleaned out.

4. A positive pressure system requires a large quantity of make-up air to be injected into the system on a continual basis or else the system becomes "starved" for air and shuts down. This is because at each drop out point (carrier or material receptor) along the system opening the receptor to receive the conveyed object causes substantial loss of the pressurized air, since the receptor acts as an air vent from the system as the air is diverted to push the moving object into the receptor. Thus the amount of air which may ultimately be returned through a return line to the positive pressure blower is a small fraction of the air which originally left the blower. The large difference in air volume must be made up by large infusions of outside air. This means that a so-called "closed" positive pressure system is not in fact "closed" at all, but must necessarily be open

for continual addition of make-up air.

In a vacuum system, however, little air needs to be added, since movement of the conveyed object or particulate material into a receptor along the conduit or at the end is by the momentum of the object or material itself causing its movement into the receptor as the air stream curves away from the receptor entrance toward the vacuum source. Thus little air is lost into any receptor and most of the air is available for return to the vacuum pump for continual reuse.

With all due respect, it is simply untrue, as the Examiner contends, that in systems relevant to Applicants' claimed system equivalence of negative and positive pressures is somehow "notorious." In fact, as discussed above, the exact opposite is the case.

The Cited Prior Art:

With these physical principles in mind, the lack of obviousness of Applicants' claimed process under § 103(a) over the cited prior art is clear.

The Examiner contends that Wade discloses the apparatus of Applicants' claims as comprising three elements: a hollow elongated ice conduit through which ice is conveyed, a receptor for receiving the conveyed ice, and "an air blower ... for withdrawing air from said conduit and creating a moving fluid with *positive* air pressure substantially throughout said conduit, said *positive* air pressure causing said ice to traverse said conduit ... " (p. 2; emphasis added). The Examiner acknowledges that Wade does not disclose the use of *negative* air pressure to move ice, but characterizes that critical omission in Wade's disclosure as merely that Wade does not "expressly" disclose negative pressure.

As has been discussed above, the distinction between negative and positive pressure motivation of ice is fundamental and Wade's lack of disclosure of negative pressure is not a merely an oversight, as the Examiner's comment supposes, but rather reflects the absolute technical difference between positive and negative pressure systems. Those skilled in the art would immediately understand that Wade cannot interchange his positive pressure for negative pressure, any more than one could interchange a high temperature system for a refrigerated system. To suggest, as the Examiner does, that one skilled in the art could read "vacuum system" into Wade's "positive pressure system" is simply wrong from every technological principle.

This basic misunderstanding of Wade's disclosure is also exemplified by other arguments

made by the Examiner. First, the Examiner equates Wade's "blower 16" to Applicants' claimed vacuum pump. The fundamental difference between positive pressure motivation and vacuum motivation means of course that an air blower is not a vacuum pump nor its equivalent. As discussed a blower creates a strong positive pressure which drives ice from behind, while a vacuum pump creates a suction which pulls the air stream with the entrained ice from in front. The vacuum pump guides the air and ice flow by pulling the ice through turns and wyes without damaging impact. In contrast, Wade's strong positive pressure from his air blower pushing the ice means that the ice must be steered by violently crashing the ice into the conduit walls or other diversionary barriers to maneuver it through turns and wyes, as is evident from the necessary inclusion in Wade's system of a "deflector screen 27" (col. 3, lines 24-30, 46-50; col. 4, lines 39-42; col. 4, line 66-col. 5, line 2).

Second, the Examiner states that Wade's air blower 16 "withdraw[s] air from said conduit [identified by the Examiner as 17 and 18] and creates a moving fluid ... causing said ice to traverse said conduit." That is not correct. In the ice movement portion of Wade's system, the only ice-conveying conduit is conduit 17. No ice moves in conduit 18; it is merely a return air duct. Wade's blower does not "withdraw" air from conduit 17, it strongly injects air at high pressure *into* conduit 17 in order to move the ice through conduit 17 ro receptors 12, 13, 14. *At no point in Wade's system is the ice subjected to anything other than an injected air stream under high positive pressure.* Further, there is not even any "withdrawal" of air from conduit 18; the return air is still under positive pressure throughout conduit 18 as it moves back toward the inlet of blower 16. Of course, as also noted above, there is little return air moving though conduit 18 at all, since most of the air will necessarily have been vented through the receptors 12, 13 and 14 as the motivated ice is dropped off at those locations. While Wade does not expressly show an air make-up inlet in his drawings, those skilled in the art would recognize that one is necessary to avoid air starvation, and that in practice the make-up air entry point is through the ice maker 11. It is significant that Wade does not suggest that the ice maker 11 is "closed," and it is well known that while commercial ice makers may be thermally insulated from the ambient environment, they are not pneumatically sealed.

It is therefore evident that Wade's entire disclosure relates to a positive pressure system

which incorporates essentially all of the attributes of positive pressures well known to those skilled in the art and defined above. The Wade system so disclosed bears no technological resemblance to Applicants' vacuum system.

The Examiner's final rejection was of course not merely on Wade alone, but was on the combination of Wade in view of Cook. It is the Examiner's contention that Cook discloses an equivalence between negative and positive pressures for motivation (which has been fully refuted above) , and that Cook and Wade are analogous because both move items by air flow. Neither of these analogies is correct in the context of Applicants' claimed invention.

The Cook system is simple in the extreme. It is merely a shuttle of a carrier back and forth between two terminals. Cook defines it for use at a drive-in bank terminal, but the same type of system has also been used to convey hamburgers in carriers from fast-food restaurant kitchens to remote dispensers for delivery to patrons.

As Cook himself states, it is a simple "push-pull" system. The key is the vent system involving outlet 26, fitting 28 and valve 30. Closing the vent permits a positive pressure to push the carrier C from terminal 12 to terminal 10, and then opening the vent creates a vacuum which returns the carrier C to terminal 12.

The simple push-pull system of Cook relies on having only a single unitary carrier, which as noted above is fundamentally different from conveying particulate materials, especially ice. There is also no removal of anything from the system -- the carrier C merely shuttles back and forth within in the conduit 14. (Only the contents of the carrier C are removed, but since the carrier C is itself closed so that the contents are not exposed to the air, the contents have no effect on the form of air motivation employed.)

It is not possible to import the teaching of Cook into Wade as the Examiner contends. Even if one flies in the face of the known technical differences between positive pressure and vacuum systems and accepts *arguendo* the Examiner's characterization of Cook's disclosure as teaching that "negative = positive", the result is wholly inapplicable to Wade's system. Wade's system cannot be under negative pressure unless his blower is operated in reverse, which would make his system drive ice from receptor 12, 13, 14 to source 11. That of course is a nonsense situation and would defeat Wade's system for its intended purpose. Section 103(a) does not permit a finding of

obviousness based on two references where their combination would destroy the system of one or the other.

Further, the Cook system has no relevance to either Ward's system or to Applicants' system, since both of those are one-way systems in which ice is moved unidirectionally from a source to a receptor, and is never returned to the source. Ward has continual system-wide positive pressure while Applicants have continual system-wide negative pressure. Thus all three systems are mutually incompatible and non-analogous.

Also, the Examiner has not pointed out any suggestion in either the Wade or Cook references that would suggest to one skilled in the art that they should or could be combined. Merely that they both deal with moving materials from one point to another by air flow is much too vague and is not sufficient. Under the Examiner's reasoning a newspaper report about a hurricane hitting a city would constitute relevant prior art since a hurricane also moves objects from point to point by air flow. In order to combine Wade and Cook the Examiner must point to specifics within the references themselves which might support the combination within the context of the rejection as applied.

The Examiner further attempts to overcome these complete differences between the references with each other and with Applicants' claimed invention by referring to other art which relates to moving "particles." As noted above one skilled in the art knows that moving large objects such as carriers is fundamentally different from conveying particular materials, and the art on one system is not relevant to the other. In addition, it will be noted that Applicant's invention involves only the movement of *ice*. Ice is a unique material, in that it is frangible and subject to melting from friction and from prolonged retention within a system. Pneumatic movement of other materials such as powders, dusts, granules, carriers, etc. is not relevant to movement of ice, since other materials are not affected by impacting, length of time in a conduit, and the like in any manner analogous to ice.

Further, the Examiner's reference to such other background disclosures is not appropriate, moreover, since the Examiner has not based his rejection in whole or in part on any of those other references. A § 103(a) rejection cannot be maintained by reference to art which has not been identified by the Examiner to be part of the rejection; 37 C.F.R. § 104(c)(2); M.P.E.P. §§ 707, 707.05. If the Examiner wishes to maintain this argument involving other, non-applied references,

and some alleged "notoriety" of positive and negative pressures in a relevant context, he is respectfully requested to withdraw the present final rejection and issue a new, *non-final,* rejection *expressly incorporating such references*, with explicit explanation of how such references are believed to modify or support the Wade/Cook combination, so that Applicants may respond accordingly. Similarly, if such contentions are based upon information within the Examiner's personal knowledge, he is respectfully requested to withdraw the present final rejection and issue a new, *non-final,* rejection including an Examiner's Affidavit under 37 C.F.R. § 104(c)(3) and M.P.E.P. § 2144.03 to that effect.

It is therefore respectfully submitted that, since Wade and Cook are mutually incompatible, entirely unrelated and would not be considered combinable by one skilled in the art, and since even if such a combination were made it would not suggest Applicants' claimed system to one skilled in the art, the stated final rejection of Claims 1, 11, 39, 59, 72, 102, 105, 126, 128, 138, 145 and 164 under § 103(a) based on Wade in view of Cook is without merit and should be withdrawn.

The final rejection of Claims 65, 97 and 151 under § 103(a) based on Wade in view of Cook further in view of Pink et al. fares no better. The deficiencies of the combination of Wade and Cook are fully discussed above, and that discussion is equally applicable to this rejection. Addition of Pink et al. does not render the rejection viable.

The Examiner has cited Pink et al. as disclosing an ice debridging device. Applicants do not contend that their invention is of an ice debridging device. Rather their invention is of a novel, nonobvious ice conveyancing system which operates under negative air pressure as the motivating force. In some preferred embodiments, the system may include means for debridging ice cubes before their passage through the system. The inclusion of debridging apparatus in the rejected claims therefore can be evaluated for obviousness only in the context of Applicants' overall claimed system.

As Applicants have pointed out above, the Wade/Cook combination of references does not make obvious Applicants' claimed system to one skilled in the art within the meaning of § 103(a). Addition of Pink et al. to that combination does not change that critical determination. Therefore the combination of Wade, Cook and Pink et al. cannot make obvious those embodiments of Applicants' claimed system in which a debridger is included.

Further, Pink et al. is not relevant to the combination of Wade and Cook, since Cook has

nothing to do with ice and Cook's carriers do not require debridging. Pink et al. could only be relevant to Wade alone, but that rejection was made in the prior Office Action and has since been withdrawn by the Examiner. A withdrawn rejection (Wade in view of Pink et al.) cannot be reimposed merely by dressing it up by further combination with an irrelevant reference (Cook's carrier system).

Therefore, it is respectfully submitted that the final rejection of Claims 65, 97 and 151 under § 103(a) based on Wade in view of Cook further in view of Pink et al. is without merit and should be withdrawn.

REMAINING CLAIMS

Previously during prosecution the Examiner required Applicants to elect no more than fifteen claims of their 164 claims as filed for the purpose of examination. In response Applicants elected Claims 1, 11, 39, 59, 65, 72, 97, 102, 105, 126, 128, 138, 145, 151 and 164. In a prior Office Action the Examiner withdrew from consideration the remaining 149 claims. Applicants have established above that the elected claims -- including the only two independent claims in the case, Claims 1 and 126 -- are all allowable. It therefore follows that all 162 of the dependent claims are also allowable, *including those 149 non-elected claims* that the Examiner withdrew from consideration. Applicants therefore request that the Examiner cancel the withdrawal of the 149 non-elected claims, reinstate those claims as active claims, and allow those claims along with the allowable elected claims.

CONCLUSION

In view of the above amendments and remarks, it is respectfully submitted that all grounds of rejection and objection have been avoided and/or traversed. The Examiner is therefore respectfully requested to enter the amendments herein, reconsider and withdraw the final rejections, reconsider and cancel the withdrawal of the non-elected claims, and allow Claims 1-164, as amended.

Should the Examiner elect to maintain one or both of the grounds of final rejection, it is respectfully requested that the remarks herein be entered into the record as placing the case in better form for appeal.

Should the Examiner believe that allowance of this application might be expedited by further discussion of the issues, a telephone call to the undersigned attorney, collect, at the telephone number listed below, is cordially invited.

Respectfully submitted,

Date: October 3, 2001 By: _____

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